

Appl. No : 10/060,842
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AMENDMENTS TO THE CLAIMS

The claims as listed below will replace all prior listings and presentations of claims in the above-identified application.

Please cancel Claims 1-3, and 9-14 as indicated below:

Please amend Claims 4-8 and 15 as indicated below:

1. – 3 (CANCELED)
4. (CURRENTLY AMENDED) ~~The display device of Claim 1,~~ A field emission display device, comprising:
 - a faceplate and a baseplate;
 - a luminescent phosphor coating applied to a lower surface of the faceplate to form phosphorescent pixel sites; and
 - a cathode member formed on the baseplate to form individual electron-emission sites which emit electrons to activate the phosphors, the cathode member comprising:
 - a semiconductor layer overlying portion of the baseplate, the semiconductor layer including an emitter tip;
 - an aluminum layer surrounding the tip and incorporating nitrogen throughout the aluminum layer;
 - an insulating layer surrounding the tip and overlying the aluminum layer; and
 - a conductive layer surrounding the tip and overlying the insulating layer;
 - wherein the aluminum layer comprises an atomic composition of about 2% - 10% nitrogen.
5. (CURRENTLY AMENDED) ~~The display device of Claim 1,~~ 4, wherein the aluminum layer comprises an atomic composition of about 5% - 8% nitrogen.
6. (CURRENTLY AMENDED) ~~The display device of Claim 1,~~ 4, wherein the aluminum layer has a resistivity of less than about 10 $\mu\Omega$ cm.
7. (CURRENTLY AMENDED) ~~The display device of Claim 1, wherein~~ A field emission display device, comprising:
 - a faceplate and a baseplate;

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a luminescent phosphor coating applied to a lower surface of the faceplate to form phosphorescent pixel sites; and

a cathode member formed on the baseplate to form individual electron-emission sites which emit electrons to activate the phosphors, the cathode member comprising:

a semiconductor layer overlying portion of the baseplate, the semiconductor layer including an emitter tip;

an aluminum layer surrounding the tip and incorporating nitrogen throughout the aluminum layer, the aluminum layer has-having a surface roughness of about 300 Å to 400 Å;

an insulating layer surrounding the tip and overlying the aluminum layer; and

a conductive layer surrounding the tip and overlying the insulating layer.

8. (CURRENTLY AMENDED) The display device of Claim ~~4~~ 7, wherein the aluminum layer is substantially hillock-free.

9. – 14 (CANCELED)

15. (CURRENTLY AMENDED) ~~The cathode of Claim 14,~~ A field emission cathode, comprising:

a substrate;

an emitter tip formed on the substrate;

an aluminum film overlying said substrate and surrounding said emitter tip, said aluminum film including nitrogen throughout said film;

a gate layer formed above the aluminum film and surrounding said tip;

wherein the aluminum film comprises an atomic composition of about 2% - 10% nitrogen.

16. (ORIGINAL) The cathode of Claim 15, wherein the aluminum film comprises an atomic composition of about 5% - 8% nitrogen.

17. (ORIGINAL) The cathode of Claim 15, wherein the aluminum film has a resistivity of less than about 10 $\mu\Omega$ cm.

18. (ORIGINAL) The cathode of Claim 15, wherein the aluminum film has a surface roughness of about 300 Å to 400 Å.

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19. (ORIGINAL) The cathode of Claim 15, wherein the aluminum film is substantially hillock-free.

20. – 30. (CANCELLED)

31. (PREVIOUSLY PRESENTED) A field emission display device, comprising:

a faceplate and a baseplate;

a luminescent phosphor coating applied to a lower surface of the faceplate to form phosphorescent pixel sites; and

a cathode member formed on the baseplate to form individual electron-emission sites which emit electrons to activate the phosphors, the cathode member comprising:

a semiconductor layer overlying portion of the baseplate, the semiconductor layer including an emitter tip;

an aluminum layer surrounding the tip and incorporating an atomic composition of about 2% - 10% nitrogen;

an insulating layer surrounding the tip and overlying the aluminum layer; and

a conductive layer surrounding the tip and overlying the insulating layer.

32. (PREVIOUSLY PRESENTED) The display device of Claim 31, wherein the aluminum layer comprises an atomic composition of about 5% - 8% nitrogen.

33. (PREVIOUSLY PRESENTED) A field emission display device, comprising:

a faceplate and a baseplate;

a luminescent phosphor coating applied to a lower surface of the faceplate to form phosphorescent pixel sites; and

a cathode member formed on the baseplate to form individual electron-emission sites which emit electrons to activate the phosphors, the cathode member comprising:

a semiconductor layer overlying portion of the baseplate, the semiconductor layer including an emitter tip;

an aluminum layer surrounding the tip and incorporating nitrogen and having a surface roughness of about 300 Å to 400 Å;

an insulating layer surrounding the tip and overlying the aluminum layer; and

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a conductive layer surrounding the tip and overlying the insulating layer.

34. (PREVIOUSLY PRESENTED) A field emission cathode, comprising:

a substrate;

an emitter tip formed on the substrate;

an aluminum film overlying said substrate and surrounding said emitter tip,
said aluminum film including an atomic composition of about 2% - 10% nitrogen;

a gate layer formed above the aluminum film and surrounding said tip.

35. (PREVIOUSLY PRESENTED) The cathode of Claim 34, wherein the
aluminum film comprises an atomic composition of about 5% - 8% nitrogen.

36. (PREVIOUSLY PRESENTED) A field emission cathode, comprising:

a substrate;

an emitter tip formed on the substrate;

an aluminum film overlying said substrate and surrounding said emitter tip,
said aluminum film including nitrogen and having a surface roughness of about 300 Å
to 400 Å;

a gate layer formed above the aluminum film and surrounding said tip.